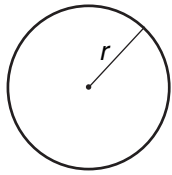


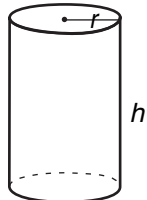
# Geometry Applied Math II Reference Sheet

## Circle



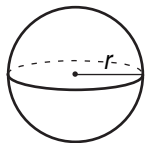
$$\begin{aligned}\text{Area} &= \pi r^2 \\ \text{Circumference} &= 2\pi r \\ \text{Circumference} &= \pi d\end{aligned}$$

## Cylinder



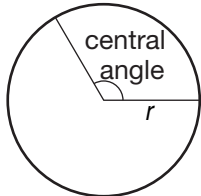
$$\begin{aligned}\text{Volume} &= \pi r^2 h \\ \text{Surface Area} &= 2\pi r^2 + 2\pi rh\end{aligned}$$

## Sphere



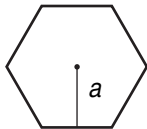
$$\begin{aligned}\text{Volume} &= \frac{4}{3}\pi r^3 \\ \text{Surface Area} &= 4\pi r^2\end{aligned}$$

## Sector of Circle



$$\begin{aligned}\text{Arc Length} &= \frac{\text{circumference} \times \text{central angle}}{360^\circ} \\ \text{Sector Area} &= \frac{\text{total area} \times \text{central angle}}{360^\circ}\end{aligned}$$

## Regular Polygon



$$\text{Area} = \frac{1}{2} \text{perimeter} \cdot \text{apothem}$$

## Formulas

**DISTANCE BETWEEN TWO POINTS:**

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

**MID-POINT BETWEEN TWO POINTS:**

$$\left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

**SLOPE:**

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

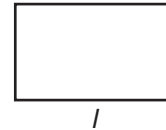
**SLOPE-INTERCEPT FORM:**

$$y = mx + b$$

**POINT-SLOPE FORM:**

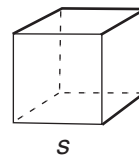
$$y - y_1 = m(x - x_1)$$

## Rectangle



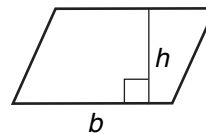
$$\begin{aligned}\text{Area} &= lw \\ \text{Perimeter} &= 2l + 2w\end{aligned}$$

## Cube



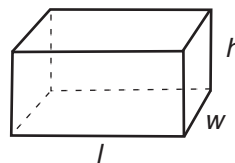
$$\begin{aligned}\text{Volume} &= s^3 \\ \text{Surface Area} &= 6s^2\end{aligned}$$

## Parallelogram



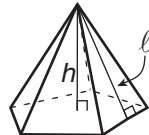
$$\text{Area} = bh$$

## Rectangular Prism



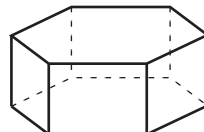
$$\begin{aligned}\text{Volume} &= lwh \\ \text{Surface Area} &= 2wl + 2lh + 2wh\end{aligned}$$

## Right Pyramid



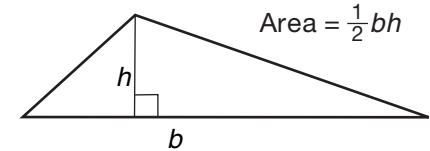
$$\begin{aligned}\text{Volume} &= \frac{1}{3} \times \text{base area} \times h \\ \text{Surface Area} &= \text{base area} + \text{face areas}\end{aligned}$$

## Right Prism



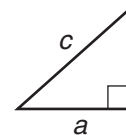
$$\begin{aligned}\text{Volume} &= \text{base area} \times h \\ \text{Surface Area} &= \text{base areas} + \text{face areas}\end{aligned}$$

## Triangle



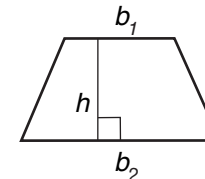
$$\text{Area} = \frac{1}{2}bh$$

## Pythagorean Theorem



$$a^2 + b^2 = c^2$$

## Trapezoid



$$\text{Area} = \frac{1}{2}h(b_1 + b_2)$$

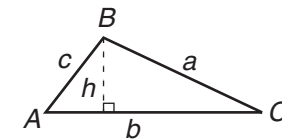
## Trigonometry Formulas



$$\sin \theta = \frac{\text{side opposite}}{\text{hypotenuse}}$$

$$\cos \theta = \frac{\text{side adjacent}}{\text{hypotenuse}}$$

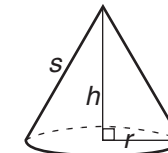
$$\tan \theta = \frac{\text{side opposite}}{\text{side adjacent}}$$



$$\text{Law of sines: } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\text{Law of cosines: } b^2 = a^2 + c^2 - 2ac(\cos B)$$

## Cone



$$\begin{aligned}\text{Volume} &= \frac{1}{3}\pi r^2 h \\ \text{Surface Area} &= \pi r^2 + \pi rs\end{aligned}$$